Determinants of Household Savings in Pakistan: Evidence from Micro Data

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Abstract

This study aims to analyze household saving behavior in Pakistan. The paper employs micro data tapes of Pakistan Integrated Household Survey (PIHS) 2001-02 and Pakistan Social Living Standards Measurements Survey (PSLM) 2011-12 conducted by Pakistan Bureau of Statistics (PBS). The study utilizes Absolute Income Hypothesis for estimation purpose and draws several conclusions. Saving increases with the level of income and declines with increases in dependency ratio, family size and age. In addition, it is found that saving rates have increased between 2002 and 2012 for all categories of households. Male headed households save more than their female counterparts. Saving rates of households with single and widowed heads are higher than those of their married counterparts. Households living in a joint family system have higher saving rates in comparison to nuclear family set ups. Finally household savings are conversely highest for households whose head has no formal education and decline successively with each level of education.

1. Introduction

Saving is vital to attain higher level of investment, which in turn is a key

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driver of higher economic growth. Domestic savings finance higher rates of investment. Developing countries usually depend on inflows of foreign savings in the form of capital or international borrowing to finance their local investment needs. However, international borrowing is associated with considerable volatility, due to unpredictable movements in exchange rates, external shocks and a range of other factors beyond the control of the borrowing country (Vincelette, 2006). Long term reliance on foreign savings tends to destabilize the economy. In fact, international liabilities narrows the national income base, serves to limit the fiscal space available to governments and leads to buildup of external debt.

The saving rates in Pakistan have been historically low as compared to countries at similar income levels and have exhibited a declining trend over the last 15 years. National savings increased from 16.5 percent to 20.6 percent of GDP during 2001-03 but have been on a persistently falling path afterwards, reaching 13 percent of GDP in 2013-14 (for detail see Table 1). Pakistan's current national saving rate compares unfavorably with those of other peer countries like India, Bangladesh, China and Thailand, as shown in Figure 1.
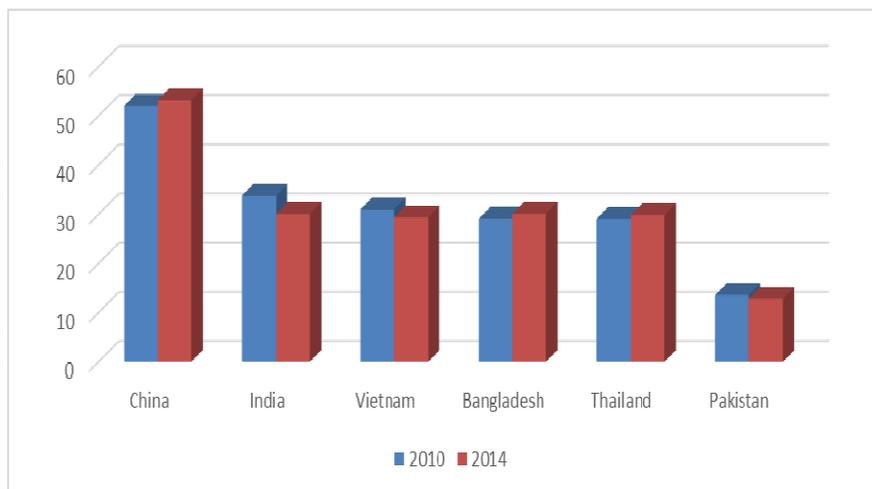
Fig 1 National Savings (% of GDP)
Source: International Monetary Fund

Table 1
Savings Trends in Pakistan (% of GDP)

	National Savings	Public Savings	Private Savings	Household Savings	Corporate Savings
2000-01	16.5	1.4	15.1	13.3	1.8
2001-02	18.4	1.7	16.8	14.8	2.0
2002-03	20.6	1.5	19.1	16.8	2.3
2003-04	18.3	3.5	14.8	13.0	1.7
2004-05	16.7	2.2	14.5	12.8	1.7
2005-06	17.7	2.6	15.1	13.1	2.0
2006-07	17.4	1.0	16.4	14.4	2.0
2007-08	13.6	-1.2	14.7	12.7	2.0
2008-09	12.5	3.0	9.5	7.5	2.0
2009-10	13.6	0.0	13.7	11.7	2.0
2010-11	14.2	-2.9	17.1	15.1	2.0
2011-12	13.0	-2.4	15.4	13.4	2.0
2012-13	13.5	-1.5	15.0	13.0	2.0
2013-14	12.8	0.2	12.6	10.6	2.0

Source: State Bank of Pakistan, various issues

National savings comprise of public and private savings. In Pakistan, public savings have been negative for the last few year due to sustaining large fiscal deficits. Private savings that represent 100 –120 percent of national savings in recent years, consist of savings by households and the corporate sector. Household saving pre-dominate private savings accounting for around 86 percent of private savings. The structure of savings is considerably different from the one prevailing in the high growth East Asian countries, with comparatively lower levels of public and corporate savings in Pakistan (Vincelette, 2006).

Given the dominance of private savings in total savings (over 90 percent, on average), the examination of household saving behavior is of utmost importance in the case of Pakistan. The present study examines saving behavior of households in Pakistan over the period 2002-12. The analysis is based on data from two rounds of nationally representative household survey datasets – the Pakistan Integrated Household Survey (PIHS) 2001-02 and the Pakistan Social and Living Standards Measurement Survey (PSLM) 2011-12. This study considers household savings behavior for overall Pakistan, as well as separately for urban and rural households. The study employs three

different forms of household saving functions – Keynesian, Klein and Landau that have been frequently employed in the literature such as Burney and Khan (1992), Khan and Nasir (1999).

The literature review reveals that previous studies for Pakistan (such as Burney and Khan, 1992; Khan and Nasir, 1999) use older data sets of 1984-85 and 1993-1994 respectively. This indicates that these studies are now outdated and hold little policy relevance. Some newer studies [for instance Abid and Afridi (2010); Ghafoor et al., (2010) and Rehman et al. (2010, 2011a & b)] are limited to certain districts like Muzaffarabad, Multan and Sargodha, respectively. Thus, the more recent studies only examine saving behavior at the district level and do not present a national picture. According to the best of authors' knowledge, recent study investigating household saving pattern at national level is missing in the case of Pakistan. This motivates us to conduct this study.

This study is significant as it holds policy relevance in the present economic scenario gives insights into household saving behavior over the last decade and indicates if there have been any changes in the structural determinants of saving during this period. The Pakistan Vision 2025 has set a target growth rate of 8 percent between 2018 and 2025 to propel Pakistan from a lower middle income country to an upper middle income nation and to help generating an additional 1.5 million jobs annually during this period. Achieving these high rates of sustained economic growth require high investment rates, that is impossible without raising domestic savings. Vincelette (2006) shows that domestic savings played an important role in achieving high rates of domestic investment in the fast growing economies of East Asia. Therefore, an analysis of recent household saving behavior would help in designing policies and programs to increase saving rates to finance the higher rates of investment required for a higher growth trajectory.

The remainder of the paper is organized as follow. Section II presents literature review. Section III explains data set and basic statistics. The methodological framework is presented in Section IV. Section V helps to

understand stylized facts on household saving patterns. Section VI provides results and discussion. Conclusion and policy recommendations are given in section VII.

2. Literature Review

Various studies have been conducted to assess the saving behavior both nationally and internationally using both cross sectional and time series data. Keynes (1936) point outs the direct link between income and saving, Harrod (1939) and Domar (1946) describe the association between GDP growth and domestic saving, Duesenberry (1949) hypothesized that saving depends upon ratio of income, Modigliani and Brumberg (1954) present life cycle hypothesis to explain saving and Friedman (1957) states that household saving is the function of permanent income.

Athukorala and Tsai (2003) examine household saving in Taiwan using the life cycle framework over the period 1952-99. The results show that saving increases with the increase in household disposable income and real deposits. Similarly, provision of credit and social security also results in higher saving. On the other hand, dependency ratio negatively influence saving rates. However, results cast doubt on combining public, commercial and household saving and highlight the need separating these aspects to determine the rate of savings. A recent study by Poon and Hon (2015) use secondary data drawn from official statistics to explore the determinants of household saving in Hong Kong. The authors find that the major determinants of household savings include income and precautions.

In case of Pakistan, various studies have been conducted in different times to observe the saving patterns in the country. For example Burney and Khan (1992) assess the household saving behavior using micro data for the period 1984-85. The authors utilize OLS technique and estimate separately three saving functions, which includes Keynes, Klein and Landau. The findings indicate that income and saving of urban household are significantly higher than rural household. Dependency ratio and education negatively

affect savings. Although age positively affect saving, after the certain limit of age savings tends to decline. These findings are in line with the life cycle hypothesis. However, the authors do not find any significant relationship between employment and saving.

Khan and Nasir (1999) analyze household saving using HIES data over the period 1993-1994. The findings specify that households engaged in agriculture sector save more while people engaged in construction save less. Contrary to the common belief, illiterate save more than literate. The average saving of rural households is greater than urban households.

While analyzing household saving behavior in Muzaffarabad, Abid and Afridi (2010) collect primary data using questionnaire as a research instrument. The analysis finds that saving depends upon income and locality. Family size and education negatively affect the saving behavior. More interestingly it is found that rural household save more than urban household with the increase in saving.

Rehman et al. (2010, 2011a&b) consider saving pattern in Multan utilizing stratified random sampling technique for a sample of 293 respondents during 2009-2010. These studies have examined determinants of household saving at the overall district level as well as separately for urban/ rural households and by different income groups, respectively. The results indicate that household saving is positively associated with spouse participation in economic activity, dependency rate; household income and size of landholdings. On the other hand, the saving level of households declines significantly with education of household head, children's educational expenditures, family size, liabilities to be paid, marital status, and value of house.

Ghafoor et al., (2010) use multiple linear regressions to examine the determinants of income and saving of small farmers in Sargodha. The findings indicate that farmers face many problems like price fluctuation, shortage of input, dynamic government policies. Moreover, age, education,

income, family size, health expenditure and credit installments significantly affect saving behavior of small farmers.

The above review clearly highlights that a national level study on household saving behavior using recent nationally representative household survey data is missing in case of Pakistan. This study aims to fill this gap.

3. Data and Basic Statistics

The paper employs micro data tapes of Pakistan Integrated Household Survey (PIHS) 2001-02 and Pakistan Social Living Standards Measurements Survey (PSLM) 2011-12 conducted by Pakistan Bureau of Statistics (PBS). The PIHS 2001-02 dataset comprises of a nationally representative sample of 14,831 households. However, few missing observations are dropped related to total consumption and household income. The analysis for 2001-02 is based on a sample of 14,682 households, with 5,526 (37.6 percent) urban households and 9,156 (62.4 percent) rural households. The PSLM 2011-12 dataset includes 15,807 households across Pakistan, which is reduced to 15,745 after dropping missing values for household consumption and income. The sample for 2011-012 includes 6,719 (42.7 percent) urban households and 9,026 (57.3 percent) households in rural areas. It is observed that the share of urban households in the sample has increased during the tenure of study, reflecting increasing urbanization in Pakistan.

Household saving is computed using the residual approach by calculating the difference between households' income and consumption expenditure, as reported in the survey. However, in this regard, it is pertinent to point out that household surveys usually measure both income and expenditure with error. Thus, the quality of savings derived using this approach depends critically on proper measurement of different heads of income and expenditure[1]. In view of this limitation, the paper makes use of four different definitions of household savings, as employed by Khan and Nasir (1999) and Burney and

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[1]Households in developing countries like Pakistan, generally tend to understate their income due to fear of being brought into the formal tax net.

Khan (1992). The use of these definitions would also give a useful benchmark to measure progress, with more recent household survey data.

These definitions include:

S1 =   Household income minus total household expenditure;

S2 =   Household income minus total household expenditure excluding expenditure on durables;

S3 =   Household income minus total household expenditure excluding expenditure on education

S4 =   Household income minus total household expenditure excluding expenditures on durables and education

The household income used for computation of savings is gross income, which includes income earned from work as well as from other sources, such as income from transfer payments, home production, rent, interest/profit, crops/ livestock, etc[2].

Table 2 shows trends in household savings in Pakistan for the two years 2001-02 and 2011-12 on the basis of these four definitions. The analysis indicates that income is considerably higher for urban households during 2001-02. It is 33 percent higher than the national average for Pakistan and around 68 percent higher in comparison to rural households. Ten years later in 2011-12, the differential has increased slightly, with income of urban households being 71 percent higher than that of their rural counterparts. On the other hand, the differential between the average savings of urban and rural households remain much higher than the income differences for all four definitions of savings. This effect is more pronounced in the latter period (2011-12) as compared to the earlier period (2001-02). This implies

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[2]It is not possible to calculate disposable income, as information on income taxes paid is usually not available in the survey.

Table 2
Savings Patterns in Pakistan

	S1		S2		S3		S4	
	2001-02	2011-12	2001-02	2011-12	2001-02	2011-12	2001-02	2011-12
				Sample Size				
Pakistan	14682	15745	14682	15745	14682	15745	14682	15745
Urban	5526	6719	5526	6719	5526	6719	5526	6719
Rural	9156	9026	9156	9026	9156	9026	9156	9026
				Average Income (Rs.)				
Pakistan	7801.60	28288.36	7801.60	28288.36	7801.60	28288.36	7801.60	28288.36
Urban	10427.63	37116.81	10427.63	37116.81	10427.63	37116.81	10427.63	37116.81
Rural	6216.68	21716.42	6216.68	21716.42	6216.68	21716.42	6216.68	21716.42
				Negative/ Zero Savers (%)				
Pakistan	57.82	58.53	56.99	57.49	54.34	51.13	53.48	49.92
Urban	53.91	56.75	52.71	55.71	47.03	45.22	45.75	43.99
Rural	60.18	59.86	59.57	58.82	58.75	55.53	58.15	54.33
				Average savings (Rs.)				
Pakistan	532.45	3830.47	620.20	4155.46	709.02	5007.18	796.78	5332.17
Urban	1087.19	6606.19	1222.39	6972.06	1429.08	8535.09	1564.28	8900.97
Rural	197.64	1764.21	256.76	2058.78	274.44	2380.98	333.56	2675.54
				Average Propensity to Save (%)				
Pakistan	6.82	13.54	7.95	14.69	9.09	17.70	10.21	18.85
Urban	10.43	17.80	11.72	18.78	13.70	23.00	15.00	23.98
Rural	3.18	8.12	4.13	9.48	4.41	10.96	5.37	12.32

Source: Author's calculations using PIHS 2001-02 and PSLM 2011-12.

that saving rate of the urban households is much higher than the rural households during the study period.

The analysis shows that average saving rate for Pakistan ranges from 6.8 percent to 10.2 percent in 2001-02. For urban households, this range is higher from 10.4 percent to 15 percent whereas for rural households it is substantially lower from 3.2 percent to 5.4 percent. However, during 2011-12, the average propensity to save increased substantially across both urban and rural households. At the national level, the range of household savings increased from 13.5 percent to 18.9 percent. In the case of urban households, the minimum saving rate for the S1 definition jumps to 17.8 percent and stands at 24.0 percent according to the S4 definition. The rise in saving rates is more pronounced for rural households and it more than doubled for all four definitions employed.

A comparison of these results with the earlier estimates of saving rate obtained by Khan and Nasir (1999) based on data from the 1993-94 round of the Household Income and Expenditure Survey (HIES) shows a reversal of trends. Their findings, based on three definitions of savings[3], showed the saving rate to be significantly higher for rural households for all three definitions; ranging from 19-20 percent for rural households and 8-11 percent for urban households. Another paradoxical result of the present study is the substantial increase in the proportion of households who are negative or zero savers. In addition, there is considerable variation around this average across the urban and rural areas of the country, ranging from 44 percent to over 56 percent for urban households and 54.3 percent to 60.2 percent for rural households[4].

4. Methodology

Empirical work on the examination of savings or consumption behavior

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[3] These definitions correspond to the S1, S3 and S4 definitions employed in the present study.
[4] These trends may indicate a worsening of the income distribution during the period 1993-94 and 2001-02. the analysis of this phenomenon is, however, beyond the scope of the present study.

is based on a number of theories of consumption and saving, starting with the Absolute Income Hypothesis put forward by Keynes. Other consumption/ saving hypotheses include the permanent income hypothesis postulated by Friedman and the life cycle hypothesis developed by Ando-Modigliani. Loayza et al (2000) discuss determinants of saving specific to each theory. The present study is concerned with using a simple saving function, based on these consumption/saving hypotheses, which hav been commonly used in examining household saving behavior.

As a starting point, the Absolute Income Hypothesis is used, which can be expressed in the following mathematical form:

$$S = a_0 + a_1 Y + a_2 Z \tag{1}$$

Here S is saving and Y is the income of the household, while Z is a vector of household socio-economic variables. Equation (1) gives a simple relationship between saving and other variables, ignoring the impact of non-linearities, which are common to household data. Empirical work has shown that household savings are likely to be zero or even negative at very low levels of household income, while rising at an increasing rate at income above subsistence level. These aspects of household savings are not accounted for by equation (1). In view of these limitations, equation (1) is revised as follows to include non-linearities:

$$S = a_0 + a_1 Y + a_2 Y^2 + a_3 Z \tag{2}$$

However, the coefficients a_1, a_2 and a_3 in equation (2) may suffer from the problem of heteroscedasticity, making even this form unsuitable for analysis of household savings behavior. This problem of heterosedasticity can be overcome by stating household savings as a percentage of income. The transformed saving function can then be expressed as given below;

$$S/Y = \beta_0 + \beta_1 Y + \beta_2 (1/Y) + \beta_3 Z \tag{3}$$

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An alternate specification of the savings function avoiding non-linearity in the savings-income relationship has been proposed by Klein (1951). This functional form is shown below;

$$S/Y = \gamma_0 + \gamma_1 \log Y + + \gamma_2 Z \qquad (4)$$

In an extension of equation (4) above, Landau (1971) put forward the following functional form in order to more meaningfully capture the shape of the savings function as well as to check the hypothesis of linear compared to non-linear relationship between savings and income:

$$S/Y = \omega_0 + \omega_1 Y + \omega_2 (\log Y)^2 + \omega_2 Z \qquad (5)$$

The present study estimates equations (3), (4) and (5) above, corresponding to the Keynesian, Klein and Landau formulations to check for the robustness of results. In addition, as these three savings functions have also been estimated by Khan and Nasir (1999) using data from the 1993-94 round of HIES, results in this study give useful insights into changes (if any) in the structural determinants of household savings over a period of nearly twenty years. These three savings functions are estimated for overall Pakistan, as well as separately for the urban and rural households for the years 2001-02 and 2011-12.

A positive and statistically significant estimated coefficient of β_1 in equation (3) and γ_1 in equation (4) indicates support for the Keynesian stipulation that equalization of income results in higher consumption and subsequently lower savings. There exist proper implications for income distribution policies in equation (3) and (4). According to Keynesian hypothesis, the equalization of income distribution increases aggregate consumption and diminishes savings. The sign of β_2 can be positive or negative, in line with the shape of the savings function. In case of equation (5), a positive and statistically significant coefficient of ω_2 would lend support to the assumption of non-linearity. The household socio-economic

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Table 3
List of Variables Used in Regression Analysis

Variables	Description
Household Characteristics	
Total Income	Total household monthly income in rupees
Ly income	Log of total household monthly income
Lyincomesquare	Log of total household monthly income square
Inverseincome	Inverse of total household monthly income
Dependencyratio	(household size-number of earners in the household)/household size
Urban	Urban areas = 1, 0 otherwise (rural, reference category)
Family	Nuclear family (head spouse and unmarried children in the house) type=1, 0 otherwise (joint family, reference category)
Secondary earners	Number of secondary earners in the household
Household Head Characteristics	
Head age	Age of the household head in years
Head agesquare	Age of the household head square
Educational Level	
Noformal education	No formal education =1, 0 otherwise
Illiterate & below primary	Illiterate & below primary=1, 0 otherwise
Primary but below metric	Primary but below metric =1, 0 otherwise
Metric but below degree	Metric but below degree =1, 0 otherwise
Professional degree	Professional degree =1, 0 otherwise (Degree, reference category)
Occupational Groups	
Legislators & Professionals	Legislators & senior managers & Professionals=1, 0 otherwise
Clerk& Service Workers	Clerk Service Workers =1, 0 otherwise
Craft& Plant Workers	Craft Plant Workers=1, 0 otherwise
Skill agriculture workers	Skill agriculture=1, 0 otherwise
Elementary Occupation	Elementary Occupation=1, 0 otherwise
Inactive	Those who are not active in labour market, neither working nor looking for work=1, 0 otherwise (technicians reference category)
Employment Status	
Employer self employed	Employer employing less than and greater than 10 employee and own account worker=1, 0 otherwise
Paid Employee	Paid employees = 1, 0 otherwise (unpaid family helpers and not active, reference category)

and demographic factors, including income whose impact on household

savings is investigated in this paper are listed in Table 3.

5. Stylized Facts about Household Savings

Household saving rates in terms of different socio-economic characteristics are shown in Table 4 for the whole sample for Pakistan. In line with the earlier analysis, saving rates are observed to have increasing trends during 2002-12 for all categories across all four saving definitions, even doubling in some cases. Male headed households are seen to have higher rates of saving compared to their female counterparts, with saving rates of female headed households rising by a smaller magnitude relative to male headed households during the study period, for all saving definitions. With regards to household size, it can be observed that rates of saving decline with successive increases in household size in 2001-02. A slightly different trend is seen for 2011-12, with saving increasing between household size of up to 4 and 5 and declining subsequently for households with members up to 6 and rising again for households with 7 and more members, for all saving definitions.

The analysis of saving rates by marital status of the head of household head reveals that households with single and widowed heads save considerably more than their married counterparts, with saving rates higher in 2011-12 for all groups under all four definitions. Single heads' saving rates range from a low of 14.8 percent in 2001-02 under S1to a high of 21.9 percent according to S4 in 2011-12. The range of saving rates is highest for households with widowed heads, starting from a minimum of 11.4 percent in 2001-02 to a maximum of 26.3 percent in 2011-12. Households with separated/ divorced heads are observed to have the lowest saving rates across all marital status categories during both years 2001-02 and 2011-2012.

In terms of family types, the analysis indicates that households living in a joint family system have significantly higher saving rates in comparison to nuclear family set ups for all definitions. It is further observed that the differential between saving rates of nuclear and joint family types is higher in 2011-12 under the S1, S2, S3 and S4 definitions of savings.

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Table 4
Socio-economic Characteristics and Household Savings Rate

	S1		S2		S3		S4	
	2001-02	2011-12	2001-02	2011-12	2001-02	2011-12	2001-02	2011-12
Sex								
Male	7.03	14.24	8.16	15.38	9.21	18.24	10.34	19.38
Female	4.01	5.19	5.04	6.37	7.45	11.27	8.47	12.46
Married								
With No Children	15.23	19.40	16.50	20.55	17.07	23.18	18.33	24.33
With Children	5.19	12.04	6.29	13.18	7.54	16.29	8.64	17.44
Household Size								
Upto 4 Members	11.31	13.95	12.40	15.21	12.69	16.76	13.77	18.02
5 Members	7.35	17.12	8.18	18.20	10.10	21.68	10.93	22.76
6 Members	5.63	11.18	6.33	12.16	8.51	16.48	9.21	17.46
7 & Above	5.76	13.13	7.05	14.30	8.05	17.34	9.33	18.52
No. of Earners								
No Earner	-3.66	4.60	-1.84	5.94	-0.06	10.97	1.75	12.30
One Earner	4.58	13.95	5.73	15.04	6.98	18.37	8.13	19.46
Two Earners	9.42	12.52	10.50	13.78	11.54	16.40	12.62	17.66
Three Earners	8.95	14.92	9.44	16.11	10.56	18.14	11.06	19.34
Four Earners & Above	20.97	21.04	22.19	21.96	22.29	23.39	23.51	24.31
Marital Status								
Single	14.82	17.02	15.67	19.10	16.54	19.78	17.39	21.86
Married	6.17	12.72	7.33	13.84	8.45	17.00	9.61	18.12
Separated/ Divorced	4.45	12.94	4.83	13.66	5.25	14.54	5.63	15.27
Widow	11.38	21.85	12.27	23.08	13.77	25.07	14.67	26.30
Family Type								
Nuclear	4.64	8.67	5.47	9.68	7.30	13.55	8.13	14.56
Joint	8.62	17.76	9.98	19.06	10.56	21.32	11.92	22.59
Education Level								
Illiterate & Below Primary	3.78	5.62	5.03	7.32	5.29	8.71	6.54	10.41
Primary To Middle	6.60	9.48	7.81	10.75	8.70	13.08	9.91	14.35
Matric To Intermediate	11.81	20.04	13.36	21.43	14.85	24.79	16.40	26.18
Degree	12.86	23.22	13.57	24.74	17.01	29.04	17.71	30.57
Professional Degree	12.09	25.77	13.87	25.96	16.90	33.46	18.68	33.65
Occupational Groups								
Legislators & Senior Managers	14.23	22.88	14.66	25.96	18.62	30.41	19.05	33.49
Professionals	11.29	25.73	12.43	26.95	15.12	31.69	16.26	32.91
Technicians	6.55	15.03	7.48	16.16	10.69	21.22	11.62	22.34

Clerks	2.75	9.21	4.36	9.95	6.35	14.97	7.95	15.71
Service Workers	15.21	23.16	16.57	24.14	17.55	27.00	18.91	27.98
Skilled Agricultural Workers	7.99	14.36	9.08	15.65	8.96	16.84	10.05	18.13
Craft & Related Trades Workers	2.17	4.39	3.08	5.37	4.90	8.38	5.82	9.36
Plant & Machinery Operators	7.17	4.57	7.81	5.44	9.19	8.46	9.82	9.32
Elementary Occupations	-2.31	-0.63	-1.92	0.09	-1.01	1.71	-0.62	2.43
Employment Status								
Employer	12.21	28.84	12.83	31.81	15.80	34.87	16.42	37.83
Employee	3.09	7.00	3.69	7.87	5.79	11.66	6.38	12.53
Self-Employed	11.88	20.28	13.23	21.51	13.48	23.39	14.83	24.62

Source: Author's calculations using PIHS 2001-02 and PSLM 2011-12

The overview of saving rates in term of level of education tends to support the conventional wisdom that educated people have higher rates of saving. The figures in Table 3 show that household saving rates rise monotonically with the level of education of the household head, for all types of savings, with saving rates higher in 2011-12 across all corresponding categories in comparison to the base year of 2001-02. Under the S1 definition of saving, the saving rate of households with head who are illiterate or have education below primary level is a mere 3.7 percent in 2001-02, rising to 5.2 percent in 2011-12. Households with head having degree level qualifications have a saving rate of 12.9 percent in 2001-02, which jumps to 23.2 percent in 2011-12. Household saving rate is seen to be highest across all levels of education under the S4 definition, and also witness the highest increase during 2002-12 especially for education levels of matric to intermediate and above. These findings contradict the results obtained by Khan and Nasir (1999), that indicate that saving rate declines by successively higher levels of education of household head, using household survey data for 1993-94.

The analysis of saving by occupational grouping of the household head reveals that the saving rate of households is highest for the top occupational categories of legislators & senior managers, professionals and service workers, although the relative position of these three categories vary across

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the two years and the four definitions. In addition, the saving rates increase during 2001-02 and 2011-12 for all occupational groups across all definitions. Under the S1 definition of saving in 2001-02, the highest saving rate stands at 15.2 percent for shop & service workers, followed by 14.2 percent for legislators & senior officials and for professionals it is 11.3 percent. Ten years later in 2011-12, the saving rate has increased for all categories; with professionals enjoying highest savings at 25.7 percent, followed by service workers (23.1 percent) and legislators and senior managers (22.8 percent). The lowest rates of saving is observed for households with head engaged in elementary occupations, that hav negative saving rates under all saving definitions, during both the years under review except for 2011-12 under the S3 and S4 definitions. This is followed by households involved in crafts and related trades.

With reference to employment status, the figures indicate that employers had highest saving rates, followed by the self-employed, with the saving rates increasing for all categories between 2001-02 and 2011-12. The paid employees were observed to have the lowest rates of saving, which were over three times lower than their employer or self-employed counterparts, under the S1 definition.

4. Results and Discussion

This section presents results of the three different savings models – Keynesian, Klein and Landau [corresponding to equations (3), (4) and (5), respectively], estimated using the ordinary least square (OLS) technique for overall Pakistan, urban and rural households separately, for the two data sets of year 2001-02 and 2011-12. These three saving functions are used to check for non-linearity and enable direct comparison with the results of an earlier study – Khan and Nasir (1999). While the paper has employed four different definitions of savings, only the results using the S4 definition are reported. It is, however, pertinent to mention that the findings using the other three definitions of savings do not vary significantly from these results.

Results of the three models estimated at the national level for both 2001-

02 and 2011-12 are shown in Table 5. A review of the results indicates that the Keynesian model better fits the data than the other two models, on the basis of R^2 as a measure of goodness-of- fit. The findings show that at the overall national level, income of the household, dependency ratio, age of the household head, different educational categories, some occupational groups, employment status, earning status and region are found to have a significant effect on household saving behavior, during both years reviewed.

In case of the Keynesian saving function, the coefficient of household income for year 2011-12 is observed to have a significantly positive relationship with savings at the 10 percent level of significance. For the Landau saving function, household income has a negative and statistically significant impact on household savings during both 2001-02 and 2011-12, with the coefficient for 2001-02 being higher. The coefficients of inverse household income in case of Keynesian function, log income in case of Klein function and of log squared in case of the Landau function are observed to be statistically significant with the expected sign in both the years. This provides ample evidence in support of the non-linearity of the savings function for Pakistan and it is also consistent with the results of Khan and Nasir (1999).

The dependency ratio has a negative and statistically significant impact on household savings across all three functional specifications. The coefficients for year 2001-02 are observed to be relatively higher across the three functions. The results of the dependency ratio among household savings in Pakistan are more or less similar with the findings of Khan and Nasir (1999).

Age of the head of household is also considered an important variable of household savings. Results indicate a strong negative relationship between head's age and household savings, implying that as age increases household savings decline. The positive and statistically significant sign of the age squared variable across all the three specifications confirm the existence of non-linear relationship between head's age and household saving during both

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years reviewed, tracing out an inverted U-shaped relationship. These results are consistent with those of the earlier studies and lend support to the life cycle hypothesis.

Table 5
OLS Estimates of Household Savings - Pakistan

	Keynesian		Klein		Landau	
	2001-02	2011-12	2001-02	2011-12	2001-02	2011-12
Total Income	2.63E-07 (4.51E-07)	2.08E-07 (7.14E-08)**			-0.00002 (9.78E-07)	-2.00E-06 (1.37E-07)*
Inverse of Income	-3399.0180 (18.8301)*	-11145.1500 (65.6801)*				
Log of Income			0.7733 (0.0121)'	0.5978 (0.0125)*		
Log of Income Squared					0.0554 (0.0009)*	0.0322 (0.0007)*
Dependency Ratio	-0.0505 (0.0013)*	-0.0426 (0.0015)*	-0.0552 (0.0022)*	-0.0388 (0.0024)*	-0.0554 (0.0022)*	-0.0377 (0.0024)*
Head Age	-0.0199 (0.0017)*	-0.0215 (0.0019)*	-0.0180 (0.0028)*	-0.0118 (0.0029)*	-0.0185 (0.0028)*	-0.0117 (0.0030)*
Head Age Squared	0.0002 (0.00002)*	0.0002 (0.00002)*	0.0002 (0.00003)'	0.0001 (0.00003)*	0.0002 (0.00003)⁴	0.0001 (0.00003)**
Educational Level: Degree Taken As Reference Category						
No Formal Education	0.2776 (0.0246)*	0.2349 (0.0198)*	0.4335 (0.0400)*	0.2991 (0.0323)*	0.4052 (0.0403)*	0.2843 (0.0326)*
Illiterate & Below Primary	0.2145 (0.0281)*	0.1704 (0.0267)*	0.3362 (0.0455)*	0.2415 (0.0427)*	0.3066 (0.0458)*	0.2279 (0.0431)*
Primary but Below Matric	0.1494 (0.0249)*	0.1635 (0.0201)*	0.2919 (0.0403)*	0.2447 (0.0323)*	0.2611 (0.0406)*	0.2323 (0.0326)*
Matric but Below Degree	0.0680 (0.0247)**'	0.0701 (0.0191)*	0.1704 (0.0398)*	0.1341 (0.0305)*	0.1528 (0.0400)*	0.1286 (0.0307)*
Professional Degree	0.0129 (0.0313)	-0.0379 (0.0333)	-0.0595 (0.0503)	-0.1473 (0.0527)*'	-0.0423 (0.0505)	-0.1386 (0.0530)**
Occupational Groups: Technicians Taken As Reference Category						
Inactive	0.0192 (0.0604)	0.1436 (0.0815)**	-0.0976 (0.0971)	0.0425 (0.1287)	-0.0855 (0.0976)	0.0398 (0.1296)
Legislators & Professionals	0.0017 (0.0292)	0.0193 (0.0267)	-0.0636 (0.0470)	-0.0436 (0.0421)	-0.0474 (0.0472)	-0.0341 (0.0425)
Clerks & Service Workers	0.0458 (0.0259)**'	0.0331 (0.0232)	0.0705 (0.0417)**	0.0544 (0.0367)	0.0794 (0.0419)**	0.0595 (0.0370)
Craft & Plant	0.0480 (0.0271)**	0.0234 (0.0242)	0.0811 (0.0436)*	0.0514 (0.0384)	0.0891 (0.0438)**	0.0542 (0.0386)

Skilled Agriculture Workers	-0.0247 (0.0274)	-0.0340 (0.0257)	-0.0159 (0.0441)	-0.0235 (0.0405)	-0.0114 (0.0443)	-0.0260 (0.0408)
Elementary Occupations	0.1202 (0.0264)*	0.1227 (0.0236)*	0.1294 (0.0425)*	0.1057 (0.0374)**	0.1475 (0.0427)**	0.1105 (0.0377)**
Family	0.0516 (0.0095)*	0.0567 (0.0096)*	0.0573 (0.0152)*	0.0387 (0.0153)**	0.0573 (0.0153)*	0.0358 (0.0154)**
Secondary Earner	0.0171 (0.0048)*	-0.0038 (90.0047)	0.0260 (0.0077)*	0.0076 (0.0074)	0.0279 (0.0078)*	0.0073 (0.0075)
Urban	-0.1191 (0.0099)*	-0.1212 (0.0096)*	-0.1550 (0.0161)*	-0.0987 (0.0153)*	-0.1489 (0.0161)*	-0.0921 (0.0154)*
Employment Status: Unpaid Family Workers And Economically Inactive Taken As Reference Category						
Employer/Self-Employee	0.0422 (0.0547)	0.0864 (0.0780)	0.0617 (0.0879)	0.0292 (0.1232)	0.0693 (0.0884)	0.0333 (0.1241)
Employee	0.0575 (0.0553)	0.1459 (0.0786)**	0.1397 (0.0890)	0.1260 (0.1242)	0.1301 (0.0894)	0.1186 (0.1251)
Constant Term	1.2085 (0.0736)*	1.1857 (0.0929)*	-6.4191 (0.1556)*	-5.7015 (0.1882)*	-3.6967 (0.1338)*	-2.9067 (0.1609)*
R-Square	0.7062	0.6546	0.2405	0.1377	0.2329	0.1266
Adj R-Squared	0.7058	0.6542	0.2395	0.1388	0.2318	0.1254
F-Statistics	1677.79	1418.89	232.15	126.64	212.01	108.48
No. Of Observations	14682	15742	14682	15742	14682	15742

Note: Figures in parentheses are standard errors.

* Denotes coefficient as statistically significant at 5% level of significance

**Denotes coefficient as statistically significant at 10% level of significance

The body of empirical evidence from the developing world including Pakistan has pointed out that educational attainment of the household head plays an important role in determining household saving behavior. Findings with respect to different levels of education of household head indicate that with reference to the base category of degree, household savings are observed to be higher for all other categories. They are highest for households whose head has no formal education with the coefficients falling for each excessively higher level of education, for all three specifications during both the years under review. In case of professional degree, the household savings are observed to be mostly negative across all the three savings functions, but are seen to be statistically significant only in 2011-12

for the Klein and Landau functions that too at a lower significance of 10 percent. These results are again broadly consistent with those of Khan & Nasir (1999) and Ahmad & Asghar (2004), who find that household savings decline with the education level of the household head. This finding may be attributable to the fact that more educated heads have a higher spending on the human development of their children, spending more on the quality of education.

The results according to occupational groupings show a significant effect on savings only of some categories. Compared to the reference category of technicians, households whose heads are engaged in elementary occupations are observed to have higher savings, with the findings for the Keynesian model significant at 5 percent level for both 2001-02 and 2011-12, while those for the Klein and Landau forms being significant at the lower 10 percent level of significance. Similarly, clerks & service workers and craft & plant workers have higher savings, with the effect being significant only for 2001-02 at 10 percent level of significance.

The results with respect to family type show a differential impact on household savings. Nuclear families are seen to have lower rates of saving in comparison to the base category of joint family across all function specifications, with the results for year 2011-12 under the Klein and Landau functions being significant at a lower level.

The results for the regional dummy indicate that households in urban areas tend to save less as compared to their rural counterparts, across all specifications during both years under review. This result is consistent with Khan and Nasir (1999). However, it is contrary to the descriptive analysis presented earlier in Table 2, which indicates that the average propensity to save of urban households is in most cases double that of their rural counterpart. This result suggests that the cost of living in urban area is higher than rural areas and as such when socio-economic variables such as education, occupation, employment status and number of dependents in household were controlled; it is observed that the urban households tend to

save less than their rural counterparts. After all, the life style of urban households is different from rural households [see more on this in Khan and Nasir (1999)].

The presence of the secondary earner in the household is seen to increase household savings. This finding is, however, only statistically significant for the year 2001-02 for the Keynesian and Landau functional forms.

The analysis by employment status shows higher savings of household of whose head is engaged as an employer/self-employed and employee, in comparison to the reference category of unpaid family workers and the economically inactive. The effect however is not statistically significant across any specification in both the years, with the exception of employee in 2011-12 under the Keynesian specification.

Urban Versus Rural Household

The results of the two models estimated separately for urban and rural households are presented in tables 5 and 6, respectively. In line with the results of the model for overall Pakistan estimated earlier, it can be seen that the Keynesian model fits the data better for both the models for urban and rural households on the basis of R^2 as a measure of overall goodness of fit, compared to the other two models (Klein and Landau).

The coefficient of income is statistically significant with the expected sign across all functional forms except the Keynesian saving function in urban areas in 2001-02, which has negative relation with household savings, although the effect is not statistically significant. The coefficients of inverse of income in Keynesian saving function, log of income in Klein's and log square in Landau function are found to be statistically significant in both the years, thus indicating non-linearity of saving functions for both urban and rural Pakistan. The rural households are observed to have relatively larger size of the coefficients for income, inverse of income, log and log squared of income in comparison to urban households.

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The dependency ratio is found to be negatively and significantly related to household savings among both regions for all functional forms, in line with the results of the national model. The coefficients for rural households

Table 6
OLS Estimates of Household Savings – Urban Pakistan

	Keynesian		Klein		Landau	
	2001-02	2011-12	2001-02	2011-12	2001-02	2011-12
Total Income	-5.57E-08	2.88E-07			-0.0000137	-5.92E-07
	(4.89E-07)ᵃ	(4.53E-08)*			(1.10E-06)*	(6.94E-08)ᵃ
Inverse of Income	-3559.4850	-9469.4850				
	(33.6838)*	(127.8070)*				
Log of Income			0.5656	0.3286		
			(0.0177)*	(0.0083)*		
Log of Income Squared					0.0396	0.0172
					(0.0014)*	(0.0005)*
Dependency Ratio	-0.0377	-0.0284	-0.0361	-0.0216	-0.0361	-0.0215
	(0.0020)*	(0.0014)*	(0.0033)*	(0.0017)*	(0.0033)*	(0.0018)*
Head Age	-0.0193	-0.0131	-0.0140	-0.0046	-0.0148	-0.0045
	(0.0028)*	(0.0018)*	(0.0045)**	(0.0022)**	(0.0046)**	(0.0022)**
Head Age Squared	0.0002	0.0001	0.0001	0.0000	0.0001	0.0000
	(0.00003)*	(0.00002)*	(0.00005)**	(0.00002)	(0.00005)**	(0.00002)
Educational Level: Degree Taken as Reference Category						
No Formal Education	0.3037	0.2041	0.3540	0.1532	0.3433	0.1530
	(0.0286)*	(0.0153)*	(0.0476)*	(0.0193)*	(0.0479)*	(0.0195)*
Illiterate & Below Primary	0.2346	0.1581	0.2162	0.1254	0.2037	0.1253
	(0.0354)*	(0.0231)*	(0.0582)*	(0.0287)*	(0.0585)**	(0.0289)*
Primary but Below Matric	0.1601	0.1325	0.2067	0.1186	0.1944	0.1191
	(0.0288)*	(0.0151)*	(0.0473)*	(0.0190)*	(0.0476)*	(0.0192)*
Matric But Below Degree	0.0848	0.0578	0.1377	0.0515	0.1339	0.0530
	(0.0278)**	(0.0138)*	(0.0452)**	(0.0172)**	(0.0455)**	(0.0173)**
Professional Degree	0.0089	-0.0351	-0.0137	-0.0750	-0.0081	-0.0785
	(0.0337)	(0.0224)	(0.0544)	(0.0277)**	(0.0546)	(0.0279)**
Occupation: Technicians Taken as Reference Category						
Inactive	-0.0804	0.2808	-0.1895	0.2449	-0.1669	0.2487
	(0.1495)	(0.1104)**	(0.2414)	(0.1361)**	(0.2426)	(0.1369)**
Legislators & Professionals	-0.0030	0.0082	-0.0722	-0.0169	-0.0633	-0.0170
	(0.0350)	(0.0199)	(0.0565)	(0.0246)	(0.0568)	(0.0247)

Clerks Service Workers	0.0376 (0.0311)	0.0179 (0.0173)	0.0549 (0.0502)	0.0104 (0.0214)	0.0607 (0.0505)	0.0142 (0.0215)
Craft & Plant Workers	0.0351 (0.0329)	0.0265 (0.0185)	0.0618 (0.0531)	0.0155 (0.0229)	0.0698 (0.0534)	0.0182 (0.0230)
Skilled Agriculture Workers	0.0312 (0.0428)	0.0105 (0.0282)	0.0292 (0.0692)	-0.0114 (0.0348)	0.0322 (0.0695)	-0.0089 (0.0350)
Elementary Occupations	0.0999 (0.0334)**	0.0628 (0.0189)**	0.0953 (0.0540)**	0.0053 (0.0233)	0.1059 (0.0543)**	0.0082 (0.0235)
Family	0.0586 (0.0143)*	0.0214 (0.0088)**	0.0837 (0.0232)*	-0.0029 (0.0108)	0.0833 (0.0233)*	-0.0040 (0.0109)
Secondary Earner	0.0162 (0.0065)**	0.0074 (0.0041)**	0.0368 (0.0106)**	0.0219 (0.0051)*	0.0380 (0.0106)*	0.0216 (0.0051)*
Employment Status: Unpaid Family Workers and Economically Inactive Taken as Reference Category						
Employer/self-Employee	-0.0036 (0.1467)	0.2575 (0.1092)**	0.0088 (0.2369)	0.2511 (0.1347)**	0.0278 (0.2381)	0.2556 (0.1355)**
Employee	0.0137 (0.1467)	0.3095 (0.1093)**	0.0607 (0.2370)	0.3085 (0.1348)**	0.0689 (0.2381)	0.3108 (0.1355)**
Constant Term	1.0724 (0.1638)*	0.5745 (0.1188)*	-4.8087 (0.3072)*	-3.4128 (0.1668)*	-2.7935 (0.2838)*	-1.8467 (0.1538)*
R-square	0.6878	0.4901	0.1861	0.2242	0.1782	0.2220
Adj R-squared	0.6867	0.4886	0.1833	0.2220	0.1752	0.2129
F-Statistics	606.40	321.78	66.28	101.87	59.69	91.85
No. of Observations	5526	6717	5526	6717	5526	6717

Note: Figures in parentheses are standard errors.
* Denotes coefficient as statistically significant at 5% level of significance
**Denotes coefficient as statistically significant at 10% level of significance

are seen to be higher compared to those for households residing in the urban areas, for all functional forms in both years, implying the consistently stronger effect of this variable on saving behavior of rural households.

The age of household head is statistically significant with a negative influence on household savings across the urban and rural households, for all specifications in both years under review. Age squared is seen to be positively associated with savings, indicating that as age of the household head increases the household savings decrease at an increasing rate up to a

certain point.

The household head are divided into various educational levels to check their impact on saving. The educational levels like no formal education, illiterate below primary, primary to middle and matric to intermediate are found statistically significant with having positive impact on saving of the household. But in case of professional degree it is negative sometime across rural and urban household while taking level of degree as a reference category. The findings suggest that as the level of education of the household head increases the ratio of saving decreases and also become negative in some cases.

The influences of occupational categories are different for urban and rural households. In case of urban household heads all the occupations have positive relation with saving accept legislators and professionals which has negative impact on savings. On other hand, in case of rural areas all occupations of household head except skilled agriculture workers have positive relation with saving. However, only the effect of elementary occupations is found to be statistically significant across rural and urban households for all functional forms.

The type of family is seen to impact household savings. , in this study there are two different types of families, one is called nuclear and the second is called the joint family where joint family is taken as a reference category. The results show that the coefficients of rural family show positive relation with saving and found statistically significant for all functional forms. In case of urban family's most of the values are found statistically significant with positive relation along saving, but in case of Klein's and Landau savings functions there exist a negative relation for year 2011-12 and these two values are found statistically insignificant.

Number of earners played a vital role in household savings; the results explained that coefficients of secondary urban households having positive relation with savings and found statistically significant for all functional

Table 7
OLS Estimates of Household Savings – Rural Pakistan

	Keynesian		Klein		Landau	
	2001-02	2011-12	2001-02	2011-12	2001-02	2011-12
Total Income	6.57E-07	3.39E-07			-0.00004	-6.92E-06
	(9.24E-07)	(2.53E-07)			(2.04E-06)*	(5.26E-07)*
Inverse of Income	-3357.5620	-11346.590				
	(23.1793)*	(84.2998)*				
Log of Income			0.9352	0.8666		
			(0.0163)*	(0.0218)*		
Log of Income Squared					0.0701	0.0512
					(0.0014)*	(0.0014)*
Dependency Ratio	-0.0582	-0.0500	-0.0732	-0.0593	-0.0716	-0.0545
	(0.0018)*	(0.0023)*	(0.0029)*	(0.0039)*	(0.0030)*	(0.0039)*
Head Age	-0.0196	-0.0246	-0.0194	-0.0195	-0.0199	-0.0203
	(0.0022)*	(0.0028)*	(0.0035)*	(0.0046)*	(0.0035)*	(0.0046)*
Head Age Squared	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
	(0.00002)*	(0.00003)*	(0.00004)*	(0.00005)*	(0.00004)*	(0.00005)*
Educational Level: Degree Taken as Reference Category						
No formal Education	0.2309	0.2040	0.3408	0.3537	0.3321	0.3412
	(0.0444)*	(0.0408)*	(0.0709)*	(0.0668)*	(0.0713)*	(0.0674)
Illiterate & below Primary	0.1733	0.1386	0.2515	0.2794	0.2473	0.2642
	(0.0478)*	(0.0490)**	(0.0763)**	(0.0797)*	(0.0767)**	(0.0803)**
Primary but Below Matric	0.1167	0.1407	0.1912	0.2689	0.1836	0.2611
	(0.0450)**	(0.0414)**	(0.0717)**	(0.0673)*	(0.0721)**	(0.0678)*
Matric but Below Degree	0.0349	0.0485	0.0628	0.1511	0.0588	0.1423
	(0.0453)	(0.0407)	(0.0722)	(0.0658)**	(0.0725)	(0.0663)**
Professional Degree	0.0371	0.0048	-0.0546	-0.0223	-0.0277	0.0567
	(0.0642)	(0.0849)	(0.1021)	(0.1367)	(0.1027)	(0.1379)
Occupation: Technicians taken as Reference category						
Inactive	0.0776	0.1227	-0.0622	0.0063	-0.0513	0.0074
	(0.0733)	(0.1140)	(0.1167)	(0.1839)	(0.1173)	(0.1852)
Legislators & Professionals	0.0084	0.0415	-0.0166	-0.0305	-0.0064	0.0284
	(0.0476)	(0.0525)	(0.0758)	(0.0845)	(0.0762)	(0.0853)
Clerks & Service Workers	0.0495	0.0368	0.0747	0.0994	0.0867	0.0961
	(0.0423)	(0.0457)	(0.0673)	(0.0738)	(0.0677)	(0.0743)
Craft & Plant Workers	0.0610	0.0104	0.0883	0.0768	0.0894	0.0726
	(0.0435)	(0.0463)	(0.0693)	(0.0746)	(0.0697)	(0.0752)

Skilled Agriculture Workers	-0.0011 (0.0423)	-0.0232 (0.0469)	-0.0130 (0.0674)	-0.0179 (0.0756)	-0.0068 (0.0678)	-0.0251 (0.0761)
Elementary Occupations	0.1430 (0.0415)**	0.1497 (0.0438)**	0.1699 (0.0661)**	0.2150 (0.0710)**	0.1848 (0.0665)**	0.2184 (0.0715)**
Family	0.0466 (0.0124)*	0.0775 (0.0154)*	0.0376 (0.0198)**	0.0758 (0.0249)**	0.0402 (0.0199)**	0.0758 (0.0250)**
Secondary Earner	0.0126 (0.0068)**	-0.0140 (0.0077)**	0.0202 (0.0109)**	-0.0106 (0.0125)	0.0194 (0.0109)**	-0.0127 (0.0126)
Employment Status: Unpaid Family Workers and Economically Inactive Taken as Reference Category						
Employer/self -Employee	0.0445 (0.0606)	0.0429 (0.1043)	0.0613 (0.0965)	-0.0346 (0.1682)	0.0690 (0.0969)	-0.0312 (0.1694)
Employee	0.0630 (0.0620)	0.1037 (0.1062)	0.1354 (0.0987)	0.0611 (0.1712)	0.1289 (0.0992)	0.0507 (0.1723)
Constant	1.2541 (0.0946)*	1.3568 (0.1337)*	-7.5531 (0.2005)*	-8.0367 (0.2958)*	-4.4497 (0.1733)*	-4.3262 (0.2474)*
R-square	0.7161	0.6757	0.2802	0.1571	0.2732	0.1454
Adj R-squared	0.7155	0.6750	0.2787	0.1553	0.2717	0.1435
F-Statistics	1152.09	937.98	187.14	88.32	171.73	76.60
No. of Observations	9156	9025	9156	9025	9156	9025

Note: Figures in parentheses are standard errors.
* Denotes coefficient as statistically significant at 5% level of significance
**Denotes coefficient as statistically significant at 10% level of significance

forms. In rural households for the year 2001-02 all functional forms show significant and positive relation between saving and secondary earner but in case of year 2011-12 micro dataset all the functional form show negative relation with household saving and only Keynesian saving function is statistically significant at 10 percent level of significance.

7. Conclusion and Policy Recommendations

The present study examines saving behavior of households in Pakistan over the period 2002-12. The analysis is based on data from two rounds of nationally representative household survey datasets – the Pakistan Integrated Household Survey (PIHS) 2001-02 and the Pakistan Social and Living Standards Measurement Survey (PSLM) 2011-12. The study employed four different definitions of household saving as used by earlier studies in

Pakistan's context to highlight the stylized facts of household savings, which are outlined below:

   i.   Saving rates increased between 2002-12 for all categories of households, across all four saving definitions,

  ii.   Male headed households have higher rates of saving compared to their female counterparts,

  iii.   Saving rates decline with successive increases in household size,

  iv.   Saving rates of households with single and widowed heads are higher than those of their married counterparts,

   v.   Households living in a joint family system have higher saving rates in comparison to nuclear family set ups for all definitions.

  vi.   Household saving rates rise monotonically with the level of education of the household head, for all saving types of savings,

  vii.   With reference to employment status, employers had highest saving rates, followed by the self-employed, with paid employees observed to have the lowest rates of saving.

  viii.   In addition, the study investigated the impact of different socio-economic and demographic factors on household savings, for Pakistan overall, as well as separately for urban and rural households by estimating saving functions for 2001-02 and 2011-12. Three different forms of household saving functions – Keynesian, Klein and Landau were estimated to check robustness of results. The main findings of the study are outlined below:

  ix.   Household income is the most important variable in determining the saving behavior of households across both urban and rural areas of the country.

   x.   Household savings are negatively associated with the dependency ratio. This effect is seen to be more pronounced for 2001-02, probably due to the drought conditions during that time.

  xi.   There is a strong negative relationship between head's age and household savings, with savings declining with age at a decreasing rate.

  xii.   Household savings are highest for households whose head has no formal education and decline successively with each level of education. This

result is consistent with the findings from earlier studies.

xiii.   Urban households tend to save less than their rural counterparts. Although this result is consistent with the findings of Khan and Nasir (1999), it is however contrary to the descriptive analysis presented in Table 2 where the average prosperity to save for urban households were much higher than those of their rural counterparts. This result suggests that the cost of living in urban areas is higher than in rural areas, hence, when socio-economic variables such as education, occupation, employment status, number of earners and dependent in a household were controlled; it was observed that the urban households tend to save less than the rural counterparts. After all the cost of living is much higher in urban areas than in rural areas, hence the urban households in order to maintain certain lifestyle, tend to save relatively less than rural households.

xiv.   Findings show that more savings can be mobilized from the rural areas of the country, a result consistent with findings of Carpenter and Jensen (2002) who point out that low incidence of bank participation and use of informal savings mechanisms in rural areas indicate the large pool of potential resources that could be mobilized into the formal sector In this regard, it is recommended that the outreach of formal financial services, like banks should be increased in rural areas, so that rural households save more in formal saving instruments. In parallel there is a need for awareness rising among the rural households about the benefits of investing their savings in financial instruments, as evidence indicates that rural households tend to use informal mechanisms to channel their savings. As findings in this study indicate that savings are highest for households whose head has no formal education, it is further recommended that in increasing outreach of formal financial services, the banking sector should focus on using technologies that require little or no literacy.

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